

Auroras were observed as follows: 1st, Ft. Pembina, Dak.; 5th, Louisville, Ky.; 7th, (?) Cambridge, Mass.; 15th, Escanaba, Mich., Clarksville, Tenn., Gardiner, Me., Rowe, Mass.; 17th, Waltham, Mass., Burlington, Vt.; 18th, Rocky Run and Wautoma, Wis., Portland and Bangor, (very fine) Gardiner and Mechanics' Falls, Me., Plattsburg, N. Y., Contoocookville and Auburn, N. H., Woodstock, Vt., Boston, Mass.; 19th, Cambridge, Mass.; 21st, Wautoma, Wis.; 30th, Starkey, N. Y.

Ground Currents.—Disturbances on lines of telegraph have been reported as follows: 4th, Pike's Peak, Col., and Concho, Texas, (during thunder-storms.)

OPTICAL PHENOMENA.

Solar Halos were observed as follows: 1st, Tex., Ky., Ind. Ter., Ga. 2d, Me., Neb., La., N. Mex. 3d, Ga., Iowa, Ky. 4th, Iowa, Ohio, Ky., La., Ill. 5th, Conn., Mass., N. H., N. Y., Ga., D. C. 6th, Ga. 8th, Ill. 10th, Conn., Mass., N. H., N. Y., R. I., Me. 11th, Conn., Miss., N. H., N. Y., Ga., Mo., La., Fla. 12th, Mo., R. I., Conn. 13th, Ill., Me., Conn. 14th, Ill., Ohio, Texas. 16th, Iowa, Wis., La., Tex. 17th, N. Y., La. 18th, Fla., Va., Ga., Ky. 19th, Conn., Ind., Iowa, Md., N. Y., Ohio, Va., Wis., Ky., N. J., Ill. 20th, Ky., Ohio, Mo. 22d, N. C. 23d, Neb., Ohio, Fla., Kan. 24th, Mo. 25th, Iowa. 26th, Conn., N. J., N. Y., Ohio, Va., R. I., Ky. 27th, Conn., Mass., Ohio, Vt., R. I., D. C., Fla. 28th, N. Y. 29th, Fla., Ga.

Lunar Halos.—12th, Fla.; 13th, Conn., Tex.; 14th, Ill., Mo., Wis., Mo.; 15th, Miss., N. J., Mo., La., Tex.; 16th, Ohio, Minn., Tenn., La., Tex., Ala.; 17th, Fla., N. C., Va., Ga., Mass., Mo., Ala., Minn.; 18th, Fla., Ind., Ky., Md., N. J., Pa., Va., W. Va., Conn., Mo., Wis., Minn., N. C.; 19th, Conn., Ill., Ind., Iowa, Md., Mass., N. J., N. Y., Ohio, Pa., Va., R. I., W. Va., Ky., Mo., Minn., La.; 20th, Fla., Mass., R. I., N. C., Mo., Wis., Minn.; 21st, Md., N. J., Conn., Mo., Wis., Cal.; 22nd, Md., Mich., S. C., Mo., Minn., N. C.; 23rd, Mo., Conn., Minn., Cal.; 24th, Minn., Ohio, Ala., N. C.; 25th, Ind., Me., Md., Ohio, Tenn., W. Va., Mich., Ala., Minn., Idaho, Kan.; 26th, Del., Ind., Iowa., Md., Ohio, Pa., Utah., N. Y., W. Va., Me., Tex.; 27th, Iowa, W. Va., Va., Mo., N. J., D. C.; 28th, Fla., N. J., Ohio.

Mirage.—Tybee Island, Ga., 2nd, 3rd and 6th. New London, Conn., 5th, 9th, 10th, 19th, 22nd, 23rd and 30th.

MISCELLANEOUS PHENOMENA.

BIRDS.—*Ducks*: 3d. Large flocks reported on Lower Fraser river, British Columbia, fully six weeks earlier than usual; Fort Pembina, Dak., S., 22nd; Clear Creek, Neb., and Portland, Or., S., 15th; St. Paul, Minn., S., 24th. *Wild geese*: Fort Randall, Dak., flying S., 18th, 20th; Fort Pembina, Dak., S., 24th; Sedgewick, Kan., SW., 28th; New Bedford, Mass., S., 26th; Fall River, Mass., SW., 23rd; Corning, Mo., S., 15th and 26th to 30th, moving in various directions from river to corn-fields; Clear Creek, Neb., S., 19th; Geneva, Neb., S., 11th; West Charlotte, Vt., S., 26th; Davenport, Iowa, S., 16th; Visalia, Cal., N., 16th; Bismarek, Dak., S., 14th. *Swallows*, Fall River, Mass., had departed, 22nd; Contoocookville, N. H., had left on the 2nd; Auburn, N. H., 10th, and Starkey, N. Y., 16th. *Martins*, Melissa, Tex., had all disappeared 12th. *Blackbirds* and *Robins*, congregating before migration on the 18th, at Wappinger's Falls, N. Y. *Wild Pigeons*, at Jacksonsburg, Ohio, S., 20th. *Whip poor-wills*, Fayette, Miss., flying S., 2nd, 15th and 18th; Auburn, N. H., had departed, 12th. *Pelicans*, Corning, Mo., appeared in large numbers 25th. *Blue-jays*, 24th, Sedgewick, Kan., flying S. *Black birds*, Clear Creek, Neb., flying S., 8th. *Catbirds*, Oregon, Mo., 7th. *Yellow birds*, Oregon, Mo., 20th. *Cranes*, Genoa, Neb., S., 17th; Wappinger's Falls, N. Y., were seen, 2nd; Oregon, Mo., S., 6th. *Heron*, Wappinger's Falls, N. Y., E., 27th. *Plover, quail and partridge*, Wappinger's Falls, N. Y., were seen 2nd to 8th. *Blue birds*, Wappinger's Falls, N. Y., seen flying S. 16th.

INSECTS.—*Grasshoppers*, Tabor, Iowa, none this fall; 11th, becoming numerous at Starkey, N. Y. *Colorado beetles*, Mendon, Mass., abundant during month.

BOTANICAL.—*Maize*, (*Indian Corn*).—5th, Guttenberg, large crop now ripe; 30th, Oregon, Mo., maturing rapidly. *Buckwheat*, ripe at Wappinger's Falls, N. Y., 18th. *Cotton*.—Leaves being eaten by worms at Melissa, Texas, 22nd; Clarksville, Texas, reports worms doing only little damage during early part of month. *Grass*—30th, Oregon, Mo., immense crop of prairie grass hay; great quantities of fodder. *Raspberries*, ripe at West Charlotte, Vt., 22nd.

Polar Bands.—Gardiner, Me., 2d, 20th and 23d. Tybee Island, Ga., 3d and 29th. Guttenburg, Iowa, 4th and 6th. Plattsmouth, Neb., 7th. Wytheville, Va., 9th and 18th. Brookhaven, Miss., 10th. Freehold, N. J., 13th and 26th. Milwaukee, Wis., 14th. Auburn, N. H., 16th. Louisville and Danville, Ky., and Vineland, N. J., 19th. Woodstock, Vt., 20th.

Sunsets.—The characteristics of the sky, as indicative of approaching fair or foul weather, have been observed daily at sunset at all regular Signal Service stations. Reports from 105 stations show 76 blank or doubtful cases, and that out of the remaining 3,074 cases, 2,551, or 83.0 per cent., were followed by the expected weather.

Forest Fires.—*Smoke* was reported as follows: Morgantown, W. Va., 21st; Detroit, Mich., 28th; Rochester, 7th, 27th and 28th; Buffalo, N. Y., 21st; Pittsburgh, Pa., 20th; Cheyenne, Wy. T., 12th; Sacramento, Cal., 4th, 8th, 9th, 18th, 20th, 22nd, 24th, 26th, 28th and 29th; Milwaukee, Wis., 13th; Springfield, Mass., 24th and 25th; North Platte, Neb., 24th. *Forest fires* of importance were reported: Denver, Col., heavy fires in mountains, 27th and 28th; Visalia, Cal., heavy fires in mountains, 17th, 18th and 20th, (fine whirlwind of cloud and smoke observed for 45 minutes.) *Prairie fires*: Bracketsville, 1st, 2nd, 3rd, 4th and 5th; Bismarck, Dak., 10th, 12th and 22nd to 29th; at several stations in Dakota, 2nd, 6th, 7th, 8th, 11th, 13th, 21st, 27th, 28th, 29th and 30th; Dodge City, Kan., 16th, 17th, 20th, 21st, 22nd, 23rd and 24th.

Meteors were observed: 1st, Dubuque, Iowa. 3rd, Visalia, Cal.; Boise City, Idaho. 5th, Savannah, Ga. 7th, Boise City, Idaho. 8th, Savannah, Ga. 10th, Dubuque, Iowa; Mt. Washington, N. H. 13th, Yankton, Dak. 15th, Savannah, Ga. 16th, Bismarck, Dak. 19th, Indianapolis, Ind. 23rd, Burlington, Vt. 26th, Stockton, Texas. 27th, Savannah, Ga. 28th, Bangor, Me. 29th, Eagle Pass, Tex., 7:20 p. m., in the N. altitude 30°; Visalia, Cal., 9:05 p. m., 30° N. of zenith. 30th, Yankton, Dak.; Davenport, Iowa.

Zodiacal Light was observed at Monticello, Iowa, 1st, 10th, 12th and 13th; Savannah, Ga., 2nd, 3rd, 5th, 6th, 8th, 9th, 26th and 27th; Cambridge, Mass., 30.

Earthquakes.—1st, Md., Latonsville, about 11 p. m.; also at Sandy Springs, at 10:45 p. m.; Brookville, Laurel and other points in Prince George's County, 20th or 21st. Yuma, Arizona, 7th, 10 p. m. 19th, Los Angeles, Cal., 4th, 2 p. m. 10th, a shock, resembling that of an earthquake, was distinctly felt at the following places: in New Jersey at Trenton, Hamilton Square, Allentown, Bordertown, Chester, Burlington, Wrightstown, Pemberton, Mt. Holly, Beverly, Riverton; and in Pennsylvania at Bristol, Torresdale, Bustleton, Germantown, Abington, Mt. Airy, Manayunk, Ashbourne and Roxburgh. Nearly all report the time as 9:59 a. m., the shock lasting from 30" to 40" and having an apparent southwest or southeast direction. Hulmeville, Pa., reports shock lasting 5 to 7 seconds from W to E. It was accompanied by a rumbling noise like moderate thunder; its intensity gradually increasing, and ranging from a gentle tremor to a force, making windows rattle and shaking fruit from trees. The track of country over which it was felt extended from a little north of Trenton to Philadelphia, or about 35 miles long by about 20 miles wide; its longitudinal axis corresponding with its apparent track. Possibly this phenomena was due to a passing meteor. 29th, Campo, Cal., at 2:30 p. m., shock lasting five seconds, accompanied by low rumbling. Advices from Callao, September 1st, and Valparaiso, August 18th, report earthquake shocks being continuously felt in some of the southern ports. Shocks of an alarming nature were felt, August 23d, at Cobija, Bolivia, at 1:40 p. m., and at Iquique at 5 p. m., and a few days earlier at Copiapo, Chili.

Volcanic Eruptions.—Advices from Kilauea, Hawaii, state that the crater, during the first weeks of September, was very active and brilliant. On the 10th the Old South Lake was about 1,000 feet in length and 600 feet wide, boiling and spouting.

SOLAR PHENOMENA.

Sun spots.—The following observations, made by Mr. D. P. Todd, upon the spots of the sun, have been kindly communicated by Rear Admiral John Rodgers, U. S. N., Superintendent of the Naval Observatory:

Sept., 1877.	No. of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		Remarks.
	Groups	Spots.	Groups	Spots.	Groups	Spots.	Groups	Spots.	
1st, 5 p. m.	0	0	0	0	0	0	0	0	Brilliant faculae.
2nd, 5 p. m.	0	0	0	0	0	0	0	0	
3rd, 6 p. m.	1	2	0	0	1	2	1	2	
4th, 8 a. m.	0	0	0	0	0	0	1	2	
4th, 4 p. m.	0	0	0	0	0	0	1	2	
8th, 6 p. m.	0	4	0	0	0	0	1	6	
9th, 4 p. m.	0	3	0	0	0	0	1	9	
13th, 6 p. m.	1	1	0	2	1	1	2	6	
16th, 11 a. m.	0	4	1	5	1	2	2	6	
16th, 3 p. m.	0	0	0	0	0	0	2	6	
17th, 11 a. m.	0	7	0	0	0	0	2	12	Many of the spots small. Spots all faint. Large group of faculae. Faculae large and bright.
19th, 3 p. m.	0	6	0	0	0	0	2	18	
21st, 11 a. m.	0	0	1	2	0	0	1	6	
22nd, 10 a. m.	1	4	0	0	0	0	2	10	
24th, 11 a. m.	0	0	0	0	0	0	0	0	
26th, 11 a. m.	2	3	0	0	1	2	2	3	
28th, 11 a. m.	0	0	0	0	0	0	2	3	
27th, 3 p. m.	0	0	1	1	0	0	1	2	
29th, noon	0	0	0	0	0	0	1	1	
30th, 3 p. m.	0	1	0	0	0	0	1	2	